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Dependence of the H-mode Power Threshold on Plasma Shape in DIII-D¹ T.N. CARLSTROM, R.J. GROEBNER, General Atomics, T.L. RHODES, UCLA — The H-mode power threshold has been measured in lower single null (LSN), double-null (DN), and upper single-null (USN) discharges where the only operational difference is the shape of the plasma. The direction of the ion grad B drift was toward the LSN in all cases. In contrast to our previous results at low triangularity (0.3) where the LSN shape had the lowest power threshold, at high triangularity (0.8) the DN had the lowest power threshold of the three configurations (DN: 1.8 MW, LSN: 2.7 MW, USN: 6.8 MW). This result suggests improved access to H-mode for future advanced tokamaks that are based on a high triangularity DN design. However, the high triangularity LSN case had a higher power threshold (2.7 MW) than recent low triangularity LSN discharges (1.0 MW). This could indicate that the power threshold increases with triangularity. At this time we can not rule out other effects that may be important to the L-H transition that occurred as a result of changing the triangularity, such as different neutral recycling behavior, x-point to target distances, and wall conditions. An analysis of these experiments will be presented.

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- Prefer Oral Session
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T.N. Carlstrom
carlstrom@fusion.gat.com
General Atomics

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